



## Food Habits of Wintering Canvasbacks in Louisiana

Whereas many aspects of the ecology of canvasbacks (*Aythya valisineria*) wintering within the Atlantic Flyway are well understood, canvasbacks wintering in the Gulf of Mexico region have not been studied in detail. Louisiana is an important wintering area for canvasbacks, providing habitat since 1985 for up to 25% of the continental population. We undertook this investigation of canvasback food habits and food preferences to gain a better understanding of habitat use by wintering canvasbacks in Louisiana.

### Canvasbacks Were Studied at Catahoula Lake and the Mississippi River Delta, Louisiana

We chose Catahoula Lake (inland) and the Mississippi River Delta (coastal) as study sites because of their traditional high use by wintering canvasbacks. We collected canvasbacks at these two sites from November 1987 through February 1988. Specimens were obtained from flocks  $\geq 3$  birds throughout the 24-hour period. Canvasbacks observed feeding before collection were opened and the contents of the upper digestive tract were removed in the field to prevent post-mortem digestion. Core samples were taken at bird collection sites in the Mississippi River Delta to assess the availability of foods. Plant seeds and tubers and animal material in all samples were washed, identified, sorted, dried and weighed. Food habits were summarized on an aggregate percent dry weight basis. The diets of individual birds were compared with availability samples using a nonparametric rank procedure.

### Plant Foods Made Up More Than 97% of the Canvasback Diet

Food samples were obtained from 94 canvasbacks collected at Catahoula Lake ( $N = 40$ ) and the Mississippi River Delta ( $N = 54$ ). Plant foods made up more than 97% of the canvasback diet. There were no seasonal differences in the proportion of plant material in the canvasback diet, nor were there any differences in plant consumption between study sites or among the various age-sex classes. The makeup of the diet of canvasbacks at Catahoula Lake differed from that at the Mississippi River Delta, but the diversity of foods in the canvasback diet was low at both study sites. Only four food taxa contributed more than 1 aggregate percent dry weight and occurred with greater than 10% frequency in the diet of birds collected at Catahoula Lake. These included (in order of importance): chufa flatsedge (*Cyperus esculentus*) and common arrowhead (*Sagittaria latifolia*) tubers, miscellaneous seeds, and annelids (aquatic earthworms and leeches). Chufa flatsedge and common arrowhead tubers made up collectively about 93% of the canvasback diet at Catahoula Lake. Three-square bulrush (*Scirpus americanus*) rhizomes, delta duck potato (*S. platyphylla*) tubers, three-square bulrush seeds, common arrowhead tubers, and dipteran larvae were the most important foods eaten by canvasbacks at the Mississippi River Delta.

We also tested for differences in the use of specific food taxa among months and by age-sex classes at our two study sites. Consumption of specific foods did not vary among age-sex classes or months at either study site.

The percent crude protein and gross energy content of canvasback foods were determined to calculate the nutritional composition of the canvasback diets at our two

study sites. The canvasback diet at Catahoula Lake was lower in crude protein but higher in gross energy content than that at the Mississippi River Delta, but the study site differences were small and probably not important biologically.

### **Canvasbacks Exhibited Significant Food Preferences**

Canvasbacks at the Mississippi River Delta exhibited significant food preferences. Three-square bulrush seeds were preferred over all other foods, but bulrush rhizomes were under-represented in the canvasback diet.

### **Continued Management for Moist Soil and Shallow Aquatic Plants Is Recommended**

Preliminary results from the study of canvasback feeding ecology in Louisiana support continued management for moist soil and shallow aquatic vegetation at Catahoula Lake and the Mississippi River Delta. This study is part of a 5-year research program seeking to estimate daily survival rates and identify causes of mortality for canvasbacks wintering in the Gulf of Mexico region. Research to be initiated during the winter of 1989-90 not only will assess daily survival rates of radio-marked female canvasbacks, but also will quantify their movements and habitat use at the Mississippi River Delta. Behavioral observations will be recorded to determine activities of female canvasbacks in various habitat types.

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